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ABSTRACT

This work discusses the limits of conversion, or zero-derivation, as a nominalization process in the Choctaw language. It demonstrates that Choctaw relies on zero derivation for many nominalizations, but that this is a process occurring in the lexicon and therefore not a word formation rule. It also asserts that there is one reliable lexeme-level nominalizing affix, "naa-," since this prefix conforms to the theoretical constraints that both the base and the product of a word formation rule be predictable. (MDM)

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WORD-LEVEL NOMINALIZATION IN CHOCTAW

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Abstract: Choctaw has a spare derivational morphology. This work discusses the limits of conversion, or zero-derivation, as a nominalization process, and shows that neither conversion nor a characteristic NP stress pattern are word formation rules. The prefix naa is a nominalizer that conforms to the theoretical constraints that both the base and the product of a word formation rule be predictable.

Introduction

Little study has been directed toward nominals in Choctaw. Because the Choctaw verbal system is quite complicated, most morphological studies have tended to concern themselves with the verbs and their inflectional affixes and clitics.

In this work I will begin to fill the descriptive void and to situate the resulting description within current morphological theory. A framework of theoretical assumptions will be followed by a review the relevant literature to point out the areas of conflict in analyzing the nominalization process. I will concentrate on the derivation of nominal forms from other categories and will treat, of necessity, other seemingly unrelated problems, to wit: the status of a phonemic glottal stop, the status of adiective as a lexical category, pitch accent, and word boundaries.

Besides linguistic literature, great reliance was placed on the speech and judgments of native speakers. The reader should keep in mind that native speakers available to me had not been formally schooled in Choctaw grammar and spoke a variety of dialects whose relationships have not yet been described.

The goal of the study is to find true morphological processes in creating nominals. I will insist that candidates for nominalizing processes should be able to qualify according to theoretical criteria outlined later. Periphrastic solutions and syntactic solutions will be exposed as such but not analyzed further. Lexical processes such as compounding will not be examined.

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The primary results are that, first, Choctaw relies on lexical conversion, often termed zero derivation, for many nominalizations, but this is a process occurring in the lexicon and therefore not a word formation rule, and secondly, there is one reliable lexeme-level nominalizing affix, naa- .

Theoretical Framework. In limiting the problem of nominalization, I rely on some well-accepted definitions in morphology, particularly those of Aronoff (1976), Szymanek (1989), and Anderson (1992). I also draw upon Drijkoningen's (1989) work on the syntax of affixes to establish the syntactic levels of some particularly opaque constructions. I will leave out lexically-based word-formation strategies such as compounding. What we are after here is morphological derivation, with a word-level base and a word-level product at the end of each derivational cycle, if there are more than one.

The chief object of the search, then, would be a Choctaw word of unambiguous lexical category, that undergoes some overt phonological operation to produce a new word of predictable lexical category (in this case Noun) and whose meaning can be reliably if not exhaustively determined by the meaning of the base as a function of the word formation operation. In the happiest case, this function, or word formation rule, would also be productive, counting a large number of existing Choctaw words and permitting formation of new words (meaning only `unknown to the speaker') and even nonce words.

The simplest evidence would consist of a series of affixes (by definition not able to exist independently) which could be correlated with a lexical category, and with certain constraints upon the base form, concatenated in a way we are very familiar with in English:

convolute$_V$
convolution$_N$
convolutional$_A$

By way of fair warning, this will not prove to be the case in Choctaw. Lacking sets of recognizable and concatenable affixes, other means must be found that may produce the same effect. The danger here lies in seizing upon any process that appears to produce a syntactic noun without regard for type and predictability of the effect, and without testing for the employment of the same process in accomplishing other possibly unrelated tasks.

The Literature. Nominalization as a morphological process has received scanty attention in the general body of linguistic research on Choctaw. Previous treatments group around two general hypotheses. The first, incompletely described by Byington and again by Downing, suggests that there may be a rule permitting general lexical conversion. The second, attributable to Nicklas, involves (primarily) placement of an accent (undescribed) on the vowel of the penultimate syllable of the verb undergoing nominalization. A variation by Ulrich posits glottal stop in conjunction with penultimate accent as a nominalizer of verbs.[1]

In Downing's pedagogical sketch of Choctaw (1974), he suggests (p. 23) that Choctaw words regularly change lexical category without morphological encumbrance, that is, by zero derivation. He quotes Byington's manuscript notes to his editor:

> `Cannot all Choctaw nouns be treated as verbs? The root may be considered as in the infinitive mood: as hattak "to be a man"; hattak (with last syllable accented), "it is a man"; hattak okmat "if a man".'

(According to Downing, Byington's editors pointed out that real-world concrete objects are generally considered to be nouns primitively.)

Byington, in his Choctaw grammar (1870), makes a number of assertions as to the fluidity of lexical category membership, suggesting without arguing for a rule for general conversion:

> (p. 49) `The words used as adjectives, or attributes of nouns, are in reality verbs;' (p. 52) `Adverbs in Choctaw are verbs as well as adverbs;' (p.45) `The nouns are either primitive or derived...the latter are derived from verbs, adjectives, other nouns, etc.'

In the last case, `derived nouns', Byington lists a number of converted items, but also says (p. 47):

> `Abstract nouns are usually formed from neuter verbs as kyllo "to be strong". The translators of the New Testament rarely, however, use these words alone, but combine others with them, for example nayimmi "faith",...nanisht i hullo "love"...'

Nicklas (1972 p. 27; Jacob, Nicklas, and Spencer 1977 p. 144), states that some derivations of nouns from verbs and adjectives occur by the placement of an

accent on the penult of the original word. He states that the meaning of the derivation (verb to noun in this case) produces an actor in the case of active verbs and a patient in the case of passive verbs (which are also derived).

Thus, from taloa `to sing' we get talóa `singer' and from holhponi `to get cooked' we get holhpóni `cooked food'.

The placement of penultimate accent seems to be a nominalizer of adjectives as well as verbs, according to Nicklas. Adjectives taking the accented penult name the abstract quality of their attributes: weki `heavy' becomes wéki `weight'. (In Nicklas's transcription, <e> = <ii> of my transcription.)

Furthermore, (same reference), nouns are also converted into other nouns by accent of the penultimate: chokfi `rabbit' becomes chókfi `sheep'. Nicklas groups these derivations together as examples of the same phenomenon.

Nicklas does not discuss what happens to verbs which already bear pitch accent (according to him), such as ikhána `to know'.[2]

From the above it would seem that accenting of the penultimate results in an array of effects, one of which may be agentive derivation (and its counterpart, the patient) in verbs, and another which may derive the name of an abstract quality in adjectives.

But it is clear that many other possible types of nominalization are left out, for instance, the simplest one, Nomina Actionis (to use Szymanek's term) wherein the verb is transformed in some regular way to mean `act of Ving'. Another type of interest to us here is the `single act of V'. The literature and my own investigations show there may be no morphological distinctions among these usages.

Nicklas's noun-to-noun derivations appear to be entirely lexical.

Looking now at Ulrich's work, his main claim is that `the only category-changing derivational morphology in Choctaw is the nominalization of verbs by accentuation of penult and suffixation of a glottal stop' (1986 p.77). He re-states this position in his 1993 work (p. 440): `The productive method of nominalizing verbs involves a glottal stop in the final syllable, together with an accent on the penultimate syllable in Choctaw...' To investigate, we must first

wonder why there are two (for him) phonemic processes at work and if they must occur in tandem: this will mean discovering if either or both of the processes is indeed phonemic and differentiating them if such is the case. Ulrich does not discuss what kind of noun his process produces. The lack of any constraints on the output's noun type (gerund, agent, abstract, etc.) would seem to limit the usefulness of this process as a word-formation rule. Examples from his work show (1993 p. 443) chõpah `to buy' nominalizing to chõpa `buyer' or `purchase' (either agent or patient), and (p. 435) hilhah `to dance' nominalizing to hílha `a dance' (single act of V).

A second claim of Ulrich that bears upon the problem is that Choctaw has no lexical category Adjective (1986 p. 15). Since the Choctaw copula has a dubious status (Broadwell 1990; Davies 1986), and the usual construction is to inflect adjectives to produce stative predicates, Ulrich claims, echoing Byington's intuitions, that there is thus no separate category--`adjectives' are either inflected verbs or nominalized by accent and glottal stop. His lengthiest discussion is about attributive adjectives being in actuality `nominalized verbs' (1986 p. 78). He does not discuss the nominalization of other kinds of verbs (transitive and intransitive or unergative) as such, but does offer examples of nominalization of these types of verb occurring in the same way (discussed in Section 2).

Ulrich's argument depends upon there being a phonemic final glottal stop and accent on the penult of himitta that will distinguish (1) and (2). In Ulrich's gloss:

(1) sa- himítta?
1acc young nom
`I'm young' (Ulrich 1986 p. 79)

(2) sa- himitta-h
1acc young tns
`I'm young'

Ulrich's example in (1) seems to denote a syntactically free-standing utterance, and to make it more nominative-sounding to the English ear, might be better rendered `I'm a young one' or even `a young one, I'.

Broadwell (1990 p. 112) agrees that the lexical category Adjective (along with Quantifier) is a `subclass of verb', citing the display of verbal morphology on both lexical types. He provides a syntactic argument involving nominalization of this

type verb through its appearance under a node that does not contain INFL, to give the briefest of summaries. I will offer another point of view in the next section.

As for nominalizing affixes, Byington's dictionary (1915) but not his grammar cites na and nan as nominalizers. The grammar also has a small list of words employing the suffix ka or kaka that seems to nominalize adjectives or what he calls `neuter nouns', that is, attributive adjectives that can be inflected as verbs; the resulting noun has the meaning `thing with attribute A'.

(3) chukbi `to be a corner' --> chukbika `a corner'

chito `big' --> chitokaka `God, the (Byington, 1870; p. 45)

The suffix ka is rare in modern Choctaw.

Byington's grammar has this to say about (my spelling) naa (p. 47): `The suffix (sic) nana or nan gives an intensive signification--naniihollochi "accursed thing".' Clearly, this is not in keeping with his dictionary definition.

Nicklas (Jacob, Nicklas, and Spencer 1977), but not Ulrich, cites the use of naa- (p. 152):

> `Sometimes nan (na before consonants) is used to derive a noun naming the patient: nan ishko "a drink"...Sometimes it names the actor: na tolubli "jumper"..." In the next paragraph: `When the noun contains isht, it names an instrument: isht tiwa "key" (to get opened)...'

Nicklas does not treat the status of the two strings, naa and isht, but from his description naa clearly is derivational and isht does not appear to primarily affect lexical category.

To summarize previous treatments of the nominalization problem, we see that (1) Choctaw may have a general rule permitting verbs and adjectives to be nominalized simply by using them as nouns; (2) an accent placed on the penultimate syllable of a verb may be a nominalizer (per both Nicklas and Ulrich), (3) a glottal stop suffixed to the verb stem may be a nominalizer, either in concert with an accent as in (2) or alone (Ulrich), (4) there may be words, clitics, or affixes such as naa and isht that are nominalizers, and (5) there is no predictable semantic outcome for any nominalized verb or adjective claimed by any

author.

Preliminary Work: The Glottal Stop, The Adjective, The Accent, and Boundaries

The Glottal Stop. Ulrich claims a phonemic glottal stop in Choctaw in both his 1986 and 1993 work. The later work discusses Western Muskogean and contrasts Chickasaw/Choctaw glottal stop distribution, notably the presence of final glottal stop after a vowel in Choctaw where Chickasaw has only a vowel. Chickasaw, however, has medial glottal stops where Choctaw employs other phonological phenomena such as vowel lengthening (and see Footnote 3). Since Ulrich continues to maintain glottal stop suffixation as a productive nominalization rule in Choctaw, the glottal stop must have phonemic status.

In comparing the different distribution of the glottal stop in Chickasaw and Choctaw, Munro (1987 p. 120) finds `phonetic glottal stops only in final position,' in Choctaw. Broadwell follows Ulrich's view that (1990 p. 16): `Final glottal stop is added by rule to all final vowels.' He suggests that Ulrich may be correct in stating that glottal stop is phonemic, but for reasons that are convenient in solving the distribution problems of final [h] (pp. 18-20) rather than by independent evidence of phonemic status.

Looking to more traditional diagnostic tools for detecting phonemicity, there are no known minimal pairs involving glottal stop, and none of my consultants can recognize the glottal stop.

My consultants do employ what may be a word-final glottal stop allophonically; however, they perceive themselves as simply terminating a short vowel, especially when showing contrast with final /h/. I have noted a good deal of variance among speakers: some produce a clear truncation of final vowels that is undifferentiable from a phonetic glottal stop; others use it variably, and some not at all. It is not unreasonable to suppose that the `glottal stop' in the latter case is really the sensitivity of the English ear to the impossibility of a final non-low non-diphthong, per Sapir's treatment (1925).

(4) [Hattak-a? balili-h]
man subj run pred
`The man is running.'

(5) [Ofi? pisa-li -h]
dog see 1nom pred
`I see a dog'

I can find no support in my own field research for a phonemic glottal stop. I cannot directly answer some of Ulrich's arguments that depend on its presence, particularly his analysis of the glottal stop as a `post-lexical clitic' (1986 p. 107-109). However, since Ulrich seems to require that a penultimate accent accompany the glottal stop, I will hypothesize that this accent will do to nominalize, as Nicklas claims.[3]

Even if phonemicity cannot be established for glottal stop, a practical argument that may inadvertently promote this view regularly insinuates itself into the discussion, if not the literature per se, about Noun/Verb distinctions. That argument is based on the observation that if predicates are marked by /h/, and verbs are the quintessential predicate, lack of /h/ (and presence of final glottal stop whether phonetic or phonemic) marks a deverbal noun. Allen Wright's lexicon (1864), in contrast with Byington's dictionary, marks (most) predicates with /h/ and deverbal nouns without it. The danger here is to confuse a practical consequence with a word formation rule: as stated in the theoretical section, a productive word formation rule must constrain and predict both the base and the output. Deverbal nouns must perforce sound like nouns--generally /h/-less. The converse is not implied: /h/ deletion does not qualify as a word formation rule unless it can meet theoretical constraints, otherwise it cannot be distinguished from zero-derivation. As we will see later, predicative /h/ may be present or absent on members of other lexical categories.

The Status of the Adjective as a Lexical Category. The nature of lexical categories in Choctaw is a topic that is attracting in-depth research apart from this investigation. A considerable body of evidence exists for a category Adjective, some of which will be brought to bear on the argument at hand. Ulrich, and to a lesser extent Broadwell, asserts that Choctaw dispenses with adjectives as a syntactic category, utilizing only Noun and Verb as the major lexical categories. Ulrich's argument for verbal status is that adjectives can be inflected (1986 p. 15). Ulrich recognizes `nominalized stative verbs' (adjectives) by their bearing penultimate accent and final glottal stop.

Ulrich's examples include, in his gloss (1986 p. 78):[4]

(6) 0 Chaaha -h.
3acc tall v
`he is tall'
(7) Hattak chaaha' pisa-li-h.

man tall see I v
'I saw the tall man'

Ulrich also suggests that verbs can be nominalized with their clitics:

(8) Ish-hí‡a -? (p. 79)
you dance n
'You're a dancer.'

Ulrich states that chaaha? in (7) is a 'nominalized verb'. Since both hattak and chaaha cannot both appear as nouns in the same Noun Phrase unless they are a compound (and he agrees they are not), he argues for the status of the glottal stop as a post-lexical clitic, nominalizing the clause hattak chaaha, which was deverbalized when it lost its inflective element -h. In the case of nominalizations incorporating clitics such as (8), only a clausal analysis is possible.

Recalling that the motivation for viewing adjectives as verbs was their capability for inflection, it is revealing to point out that quantifiers, degree specifiers, adverbs, and nouns may also be inflected, although nouns as predicate nominals may not generally bear the -h predication marker. All but nouns may also carry aspectual morphs, which are commonly seen on verbs (and which Ulrich assigns to verbal, but not nominal, morphology (1986 p. 15).) The presence of verbal morphology alone would seem to make for but a tentative diagnosis of lexical category, recalling that there is no evidence that Choctaw does not employ polyfunctional affixes.

The following examples show the wide distribution of the predication marker (-h), the complementizer -kat, and the stative aspect marker, all examples of typically verbal morphs.

(9) Soba balili-kat losa -h.
horse run comp black pred
'The horse that's running is black.'

(10) Soba toklo-kat balili-h.
horse two comp run pred
'Two of the horses are running.'

(11) Soba losa- t toklo -h.
horse black subj two pred
'There are two black horses.'

(12) Soba hannali mat losa -h chiyyohmi-h.
horse six dem black pred very pred

`Those six horses are very black.'

(13) Soba-yat itõla -h.
horse subj lie/asp pred
`The horse is lying down.'

(14) Chokfi-yat chokka nõta itõla -h.
rabbit subj house below/asp lie/asp pred
`The rabbit is lying just below the house.'

A safer conclusion would be that Choctaw makes multiple use of a small number of inflectional affixes and verbal status cannot be determined from the appearance of an affix that coincidentally appears on verbs.

Turning to positive evidence for a category Adjective, following Chomsky's (1965; 1970) characterization of Adjective as [+N, +V], we see that Choctaw `adjectives' also behave nominally: only adjectives and nouns may employ the verbal proform -a in one kind of focus construction. When so used, they denote permanent characteristics i.e., (Adj.) person, or may have metaphorical force.

(15) Chito si- a -h.
big lacc V pred
`I am a big person. ~ I am an important person.'

(16) Alikchi si -a -h.
doctor lacc V pred
`I am a doctor.'

Furthermore, `adjectives' are readily nominalized by a general conversion rule, producing `the A one.'

(17) chito mã `that big one'

ãchito `my big one'

This latter rule will be investigated more throroughly in the next section, when I compare the behavior of this lexical group with that of (true) verbs.

There are more general grounds upon which to discourage the argument that an Adjective is variably a Verb or a Noun. Recall that this argument relies on the loss of tense (INFL) as a de-verbalizing process that then renders the former verb capable of being reconstituted as a noun. The main problem with this kind of subtractive derivation is that there must be sufficient information in the lexical residue to permit reorganization as a word that will function like all other adjectives and NOT like members of other `verbal

subclasses'. Only lexical specification will do this; syntactic solutions depend on these differentiations primitively. We would have to propose some sort of lexical subgroupings to be sure that the verb decomposed into the correct category once inflection were lost--this is not different from having lexical categories to begin with.

A far more conservative solution is to approach the problem as one where most lexical categories in Choctaw are permitted to become predicates. Note that the output of such constructions is highly constrained: they render only predicates with the meaning `to be X', very much like English with its parallels `to be fat'; `to be many'. Furthermore, each lexical item behaves like its category mates with respect to both its behavior while serving as a predicate and its behavior freestanding. The traditional nomenclature and definitions obviate the need to posit clauses inside the Noun Phrase.

Accent. The problem of accent is central to this study. Both Nicklas and Ulrich suggest that the placement of penultimate accent on verbs and adjectives nominalizes them, at least some of the time. I would expect such a process to lend phonemic status to the accent (independent of any underlying lexically specified accent). To test this hypothesis, we need to differentiate among processes that would cause the voice to alter its pitch. Besides underlying `accent' assignment, (and leaving this notion not precisely defined for the moment) let's consider phrasal pitch contour (not treated anywhere in the literature).

Phrasal pitch contour: Choctaw speakers set off sentence constituents with vocal inflection. The phrasal contour for the simple declarative (three-constituent) sentence is Mid Tone on the first constituent followed by a High peak and low trough on the second constituent, and finishing with rising pitch the final constituent, usually the main verb:

(Byington (1870) offers the following (p. 11):

> `There is another accent which falls on the final syllable of such words as in English are followed by marks of punctuation, from the comma to the period. It is called the pause accent.'

This appears in keeping with the High finish, but since we do not know what Byington's `accent' is, this

statement is at best something to muse over.)

Note how this pattern is adhered to in each of these three-word sentences, even though the first two words of each represent different lexical categories or constituents, or even different clauses, as in (20).

(18) Hattak-at tamaha ia-h.
subj loc V
'The man is going to town.'

(19) Ãnakfi palaska im-a-li-h.
IO DO V
'I give bread to my brother.'

(20) Ohoyo-at sa-pisa-tokã, aachi-tok.
dependent clause V
'The woman said that (someone else) saw me.'

(21) Ohoyo-at taloa-h moma-h.
subj V Adv
'The woman is still singing.'

The contour seems to be positioned so that the main verb, or last word in the VP, as in (21), falls on the rising contour, no matter how many syllables it contains or if agreement markers are attached.

Choctaws are, of course, not obligated to this contour and may alter it to enhance expression. That this is the usual declarative contour may be demonstrated by its distinctiveness from the interrogative contour:

(22) Hattak-at tamaha iah-õ?
man subj town go interr.
'Is the man going to town?'

The falling pitch of the yes/no interrogative is characteristic.

Noun phrase contour: A somewhat weaker contour, in the sense of being more variable from speaker to speaker, is produced in Noun Phrases (Nicklas also attests to this (Jacob, Nicklas, and Spencer 1977 p. 13)). A noun phrase with modifiers will have each modifier accented on the penultimate syllable, unless

it has underlying accent elsewhere. A noun phrase consisting of a lone noun may or may not bear penultimate accent.

(23) sóba `horse'

soba lósa `black horse'

soba lósa chíto `big black horse'

soba lósa chíto mã `that big black horse'

Notice that accent is shifted in accordance with NP boundaries, not word boundaries, even though soba `horse' contains an underlying accent according to Nicklas (Jacob, Nickas, and Spencer 1977). The same phenomenon occurs with Nouns that purportedly have no underlying accent.

While not offered as direct evidence for or against a phonemic accent, the phrasal pitch contour shows that a high (falling) pitch on a selected syllable of the last word of the constituent directly to the left of the verb complex is the expected pronunciation irrespective of lexical category, particularly if there is also a constituent to occupy the `initial Mid pitch position'. Additionally, noun phrases may bear high pitch on the penultimate syllable of the head if alone, and regularly on any adjectives and other non-determiner modifiers.

Alternate lengthening: In Choctaw, a series of CV syllables will undergo rhythmic lengthening (Ulrich (1986), or Alternate Lengthening (Nicklas 1974), whereby the second and every other even-numbered syllable except the final will be lengthened. Byington (1870; p. 11) offers an even more general scheme in which the penult and every other syllable moving leftward from it is also accented irrespective of weight. Lombardi and McCarthy (1991), drawing primarily on Nicklas's data, use this evidence to posit an iambic foot structure for Choctaw. Broadwell, too, notes that there is variation, whether dialectal or idiolectal, in the speakers' production of long vowels. His example, (1990; p.13) sa-salaha `I am slow' shows alternation between sa-saalaha and sa-saalaaha.) The relationship to accent is the same as that of contrastive vowel length.

Contrastive vowel length: Vowel length is contrastive in Choctaw. I am attempting to keep vowel length separate from the idea of `accent'; nevertheless vowel length and phonological stress are often strongly correlated in many languages. I bring it up here

because Ulrich describes his `penultimate accent' occurring in expressions that (p. 78) `typically refer to characteristic activities or properties...íshko? "he drinks" or "he's a drinker".' The nomic tense (Nicklas's term) in Choctaw is made by lengthening the vowel of the penultimate syllable and denotes activities or states of being that are characteristic.

(24) Baryshnikov-at hiiła -na Sinatra-at talooah.
subj dance(asp) and subj sing(asp)
`Baryshnikov dances and Sinatra sings.'

It should be pointed out that empirical evidence for a nomic aspect is less conclusive than that for the other aspects. [5]

Phonemic high falling pitch: Besides all the above, there is direct evidence for phonemic accent--this is rendered as high, falling pitch, contrasting with length, with euphonic word-final rising pitch, and with phrasal pitch contour.

The imperative is produced by placing an accent (high falling pitch) on the final vowel.

(25) binili `to sit'
binilí `sit down'

tõshpa `to make haste'
tõshpá `hurry up'

The intensive aspectual marker is formed in part (along with medial segment reduplication) by high, falling pitch on a first-syllable vowel.

(26) chito `big'
chíyyito `huge'

falama `to return'
fállaama `to finally return'

These distinctive processes will prove useful when testing penultimate accent as a nominalizer.

Word Boundaries. As previously mentioned, Choctaw has little in the way of a modern and well-disseminated written corpus. While this fact should not hinder the ability of an experienced linguist to pick out orally produced words from higher and lower levels of organization, it does tend to create disparities in what informants believe to be `words'. In the linguistic literature, authors tend to place hyphens between a root and its affixes and clitics. One pedagogical work (Jacobs, Nicklas, and Spencer (1977)

separates nearly all morphemes. The main Choctaw texts, the Bible translated by Byington and a hymnal, attach some but not all inflectional particles directly to their hosts and frequently leave other elements that appear to be affixes or bound morphemes of some sort (notably naa and isht) free-standing. Compounds are sometimes written together and other times separated without appeal to clear phonological or semantic grounds. My consultants were not altogether helpful in this way either, since they were often sensitive to the meaning changes afforded by affixes and clitics and wanted them to be words (we might speculate about interference from English).

Since I am, from the above, clearly insisting that there should be affixes and clitics in Choctaw, it would be well for me to set out what sorts of criteria I expect to use to differentiate them from each other and from words.

Borrowing heavily from the work of others, especially that of Zwicky (1985), and Klavans (1985), I would use the parameters of independence (of an item) and attachment (preferences and requirements) to categorize candidates. The immediate importance to the problem at hand is that, of phonological entities realized as a string of one or more segments, a word-level nominalizer would best be an affix.

In accepting an entity as an affix, it should have a limited and predictable distribution (discussed earlier), should in some cases `close a word to further affixation,' (Zwicky's phrasing), should be affected by the syntax, and should NOT attach to an entire phrase. Our candidate naa- will be tested according to these diagnostics (not an exhaustive list).

Three Hypotheses for Nominalization Processes

Lacking evidence for many overt derivational affixes, we should entertain the possibility that syntactic categories are derived by some conversion process. Certainly, Byington's Choctaw dictionary operates according to this theory, listing the same entry for related nouns, verbs, adjectives, participles, and adverbs:

tōshpa `hasty' A
`speed' N
`to go in haste' V
`precipitated' PP
`speedily' Adv

Allen Wright, in his lexicon (1860), noted predicative uses of words, adding predicative -h to those forms

that required it, such that he enters falamah `to return' but falama `a return'. (Of course, Byington, in describing usage, suffixed tense markers, although not -h, in at least those forms he used as predicates.)

Most words do not lend themselves to all categories, but it is extremely common for the same word to be used as both noun and verb, with the latter taking appropriate tense/predication marking.

Byington's dictionary does not take accent into account (although length is indicated), so accent may distinguish categories from one another.

It would seem we could hypothesize several solutions based on what facts we have and devise ways to choose the most convincing (if any).

Hypothesis 1. Nominalization occurs by conversion (zero derivation).

If we assume a basic verb (Szymanek p. 84) and propose that nominalization is verb-to-noun (and in Choctaw, adjectives are so readily made predicates, that we could posit an intermediary derivation of A --> V), then verbs are converted to syntactic nouns by a rule that operates in the lexicon. On the morphological level, such a noun cannot be distinguished from a verb (or adjective). What we don't know is whether Choctaw permits this rule to occur generally or on selected, and therefore, unpredictable items.

Such a hypothesis would be easy enough to test: we need only find verbs posturing as nouns. One problem we may encounter is differentiating nominal clauses from `words' and types of nominal clauses from each other; in these cases we will need to employ tactics that will illuminate syntactic level. Tests will include ability of derived forms to accept adjectives, determiners, case markers, and clitics.

A second crucial consideration is to predict a regular noun type output; while we might unreflectively expect this output to be a gerund or `condition of being V,' since the gerund represents a syntactic level different from the infinitive, this will have to be examined. Evidence from dictionaries seems to support the view that output type is variable and unpredictable: sometimes the noun type is an agent, sometimes a patient, other times `single act of V', etc. (see theoretical section).

Hypothesis 2. Verbs are nominalized by placing an accent on the penultimate syllable. Nominals do not

bear predicative -h.

I am assuming that glottal stops are not nominalizers for the reasons discussed in Section 2, though a word may manifest its status as a noun by terminating in a phonetic glottal stop.

This hypothesis presents the most difficulty in testing. First, we must decide how we know if a syllable is accented, since CVC and CVV syllables are lengthened relative to CV, and some words have underlying stressed syllables, which surfaces as high falling pitch. Additionally, alternate lengthening operates at the word level, lengthening the vowels of some syllables. Then we must consider the effects of phrasal pitch contour. We might guess that the effects of a nominalizing accent might be obviated if the affected syllable is already `accented' somehow. Since we have a phonemic accent--high falling pitch--this is the only reasonable candidate for a nominalizer among this group.

To test Hypothesis 2, I select verbs with no attested underlying accent. I then ask subjects to pronounce sentences with these verbs in both a verbal and a nominal position. Then, on a different occasion, I ask subjects to listen while I pronounce the word IN ISOLATION both with and without penultimate accent. This last condition is critical in establishing a morphological, word-level effect. It is also important to look for the possible intrusion of conversion into this set of data; that is, if a speaker determines a verbal form to be a noun, we must assure ourselves that he is responding to the presence of the accent.

As for the type of the derived nominalization, since the authors supporting this rule predict a mixed bag of types, I will accept an array of noun types, although a robust rule should restrict the range of types.

Hypothesis 3. The prefix naa- is a nominalizer resulting in a derivation meaning `that which Vs/ is Ved.'

This hypothesis can be tested both in examining existing dictionary words and by creating hypothetical derivations by affixing naa- to a verb.

I test this by pronouncing both made-up and dictionary examples of this derived form in isolation to subjects and asking them what, if anything, they mean. Again, an effect at the word level is necessary to suggest a morphological nominalizer.

Responses are examined for consistency in the meaning of the derived words.

Other candidates for morphological nominalizing affixes must also be examined, particularly -isht- and aa- and its variant ai-

Results and Analysis. The results of tests support Hypothesis 1 as a lexical process but not as a word formation rule, and strongly support Hypothesis 3; Hypothesis 2 is not supported on several grounds, but bears discussion as to the relationship between accent and NP category as discussed in the previous section.

Conversion (Hypothesis 1): A very common means of derivation is lexical conversion. Some verbs have a nominal use that is given in the lexicon and whose meaning is unpredictable among of an array of noun types: `single act of V'; `actor'; `abstract condition of V'.

In Choctaw we do not seem to have a nominalized verb comparable to the gerund. All clauses, whether tensed or not, contain predicative -h or a complementizer.

(27) Taloa-h sa- banna-h.
sing pred 1acc want pred
`I want to sing.'

(28) Tobi impa-kat im- achokma-h.
beans eat comp 3dat good pred
`He/she likes to eat beans.'

Drijkoningen (1989) devises a useful model for determining the syntactic level of nominalizations. The lowest level (and our research object) is the word-level (or X^0, or lexnom, in Drijkoningen's terminology). Intermediate levels would be gerund, at the verb phrase level, and infinitive, at the inflectional phrase level. Specifically, a gerund should permit the assignment of accusative case to an argument and permit the attachment of genitive markers, while an infinitive should not permit genitive markers.

Enlarging on Drijkoningen's model for our purposes, a lexical nominative (X^0) should behave as a lexical noun (X^0): It should accept adjectives, possessive markers, and casemarkers, and should also be able to accept tense and aspect markers (in contrast to the infinitive). Since infinitives are clearly marked as verbal, we need only concern ourselves with lexeme-level verbs.

Looking first at adjective acceptance, we see that some verbs but not others can be modified by adjectives.

(29) * omba achokma `good rain'

but hoponi achokma `good cook'

The subject marker used for lexical nouns, -at again, does not attach to converted nominals, except when these are lexicalized.

(30) * Taloat achokmah.
Sing subj good tns
`singing is good'

(31) lexicalized verb toksali `to work; a job'

Toksali-yat achokma-h.
work subj good pred
`The job is good.'

Possessive markers may similarly attach to converted nominals only when lexicalized.

(32) * Ã- taloa ish-hãklo-h-õ?
1poss sing you hear int
`Do you hear my singing?'

Chĩ-tõksali pi- banna-h.
2poss work 1acc/pl want pred
`We want your job.'

There is clearly no rule of general conversion from verb to noun in Choctaw. Still, a fairly large number of verbs are lexicalized, and as is common to such lexicalizations, without predictable outcomes as to type (the following are from Byington's dictionary):

(33) hoponi `to cook' hoponi `a cook'

komonta `to be uneasy' komonta `uneasiness'

kocha `to come out' kocha `a departure'
kocha `an outcast'

(and many others. The basic meaning is the postposition `out', the one my consultants select first.)

Again, the large and unpredictable array of derived noun types is a hallmark of lexicalization by conversion, and not evidence for a word formation rule.

Converted adjectives: A different story is told with adjectives undergoing conversion to syntactic nouns, first mentioned in Section 2. There is no problem with these accepting determiners and case markers, possessive markers, or degree specifiers and numerals. The output is always Adjective qualifying a null Noun head: `Adjective one'.

(34) chito mã `that big one'

chito chiyyohmi `the very big one'

ã-chito `my big one'

chito-at `the big one (subject)'

This evidence suggests that there is a category Adjective that is differentiable from the category Verb.

Accent (Hypothesis 2). The presence of a NP pitch contour means that a noun could be differentiated from a verb on the basis of an accent on the penultimate syllable of the former. It is important to recognize that NP pitch contour is the result of another process--the conversion of a Verb Phrase to a Noun Phrase through zero derivation--and is not itself the word formation rule that derives a noun from a verb.

The following group of verbs does not have a corresponding set of nominals. Whether Choctaw speakers heard them pronounced with even stress or with a penultimate accent, they always stated that each word was a verb.

(35) impa `to eat' ímpa `to eat'

haklo `to hear' háklo `to hear'

taloa `to sing' talóa `to sing'

As it fails to produce a word-level effect, we must withhold support for the penultimate accent as a morphological nominalizer. Since this experiment in eliciting judgments is not controlled for any kind of bias, we cannot be sure of what the consultants were responding to, but we must remain suspicious of the accent's lack of effect.

Naa- and Other Affixes. The prefix naa- regularly nominalizes verbs pronounced in isolation and the derived forms predictably mean `that which Vs/is Ved'.

The words in the previous example do not have a lexicalized naa- form. When they were derived as nonce forms, informants responded this way:

(36) nanimpa `food'

naahaklo `something that is heard'

naataloa `a song'

All these examples happen to have a patient role. It may be that this reading is the more productive, since the informants could have defined, but didn't, naahaklo as `a hearer' and naataloa as `a singer'. Byington's dictionary contains many agent readings, and in fact defines naahaklo as `hearer'. There does not seem to be at this time any reason to think that both are not licit, but I do not know what the distribution might be.

Naa- is also hugely productive in Choctaw, as in this monolingual speaker's invented word:

(37) naa-kapassa-chi
nom cold cause
`refrigerator'

If we look at another morpheme, -isht-, suggested by Nicklas as serving a parallel function to that of naa- we see that while -isht- adds the meaning `instrument' to the construction, it does not nominalize (or perform any other derivation), although its attachment may create a new lexicalization that is a de facto category change.

(38) ishko `to drink' ishtishko `a cup'

ia `to go' ishtia `to carry'

mĩti `to come' ishtmĩti `to bring'

Compare these with what happens when we add naa-

(39) apiisa `to measure'

ishtapiisa `to measure with'

nanishtapiisa `measuring instrument; ruler'

There are other morphemes that coincidentally form nouns in the course of a derivation. Aa/ai, a locative morpheme, frequently renders nouns: aiimpa `place where one eats' --> `table'. But aa/ai primarily confers the sense of location: aiahoba `to

appear (somewhere)', and includes an enormous number of verbs that incorporate aa/ai with the sense `from', such as aatoba `to be made from'.

The Nature of Naa-

That naa- nominalizes cannot be doubted, but there remain questions about its categorial status. It is not certain that it is an affix, though I treat it as one here and hope to offer persuasive evidence that it is an affix rather than a clitic or a word.

Ulrich states (1986 p. 16) that naa is a clitic, grouping it with isht and a number of other morphemes, none of them derivational in the sense of changing lexical category. As we recall, he confines nominal derivation to a accent-and-glottal-stop operation, and does not entertain affixal possibilities.

Byington defines naa (in his spelling na) as a prefix that attaches to verbs and nominalizes them, but he only occasionally attaches na orthographically to his entries; generally it stands alone. (The same treatment occurs with isht.)

Let us proceed with a number of familiar tests.

Susceptibility to Further Derivation. We would expect that an affix would lend a word limited permeability by other affixes, that is, in its derived form, a word then serves as a preferred base for another affix. Since there will be no other affixes, we can examine naa-derivations' behavior with respect to clitic attachment and conversion into verbs.

Naa derivations can be re-verbalized.

(40) fohka `to put on/in'

naafohka `clothes'

naafohka + tense `one is (tns) dressed'

naafohka fohka `to put on clothes'

(41) Ohoyo-at naafohka fohka -h.
woman subj clothes put on pred
`The woman is putting on clothes.'

(42) Ohoyo-at naafohka-h.
woman subj clothes pred
`The woman is dressing.'

Re-verbalized nominalizations can accept aspect

markers.

(43) Ohoyo-at naafõhka -h.
woman subj be dressed/asp pred
`The woman is (stative) dressed.'

Naa- derivations can take adjectives, numerals, determiners, and casemarkers.

(44) Naafohka himona pã chompa-li -tok.
clothes new dem buy 1nom pst
`I bought these new clothes'

(45) Naafohka-at himona-h.
clothes subj new pred
`The clothes are new'

(46) Nanikhanachi toklo-kat sa -haklo-tok.
nom teach two part 1acc hear pst
`Two of the teachers listened to me.'

Naa- cannot attach to the clitics of inflected verbs, although there are a number of lexicalizations that include, especially, dative markers.

(47) *nan-im -achokma-h
nom 3 dat good pred

* naa-chi -pisa-tok
nom 2 acc see pst

but nanittimapiisa `contract'
from nan + itta + im + apiisa
nom + `together' + `3 dative' + `judge'

Naa- cannot attach to the possessive marker.

(48) * nan-ĩ -chokka
nom 3 pos house

Naa- cannot attach to phrases or clauses.

(49) * naa tobi impa-h
nom beans eat pred

From this evidence we can infer, using Zwicky's diagnostics, that naa- behaves like an affix because `syntactic rules can affect affixed words but cannot affect clitic groups', and `clitics can attach to material already containing clitics but affixes cannot,' (1985 p. 285).

Ordering and Exclusion. If naa- is an affix, it is likely to be strictly ordered with respect to other

elements, and may 'close off' the base to further affixation (Zwicky p. 286). Naa- appears as the left-most element on the word, but closer to the stem than clitics such as the possessive marker. It cannot be ordered to the right of morphemes such as isht.

(50) nanishtapiisa 'ruler'

*ishtnanapiisa

but ã-nanishtapiisa 'my ruler'

With this evidence, we can say that naa- appears 'closer in' to the base than do clitics, and is thus likelier to be an affix.

Is Naa a Word? While I can provide good evidence than naa is probably not a clitic, there remains the possibility that it is a word. Byington suggests that naa is derived from the word nana 'thing; something'. It is possible that naa is a shortened form of nana and that all these derivations are in fact compounds. A number of speakers in fact interchange nana /naa/naa + verb.

(51) nan isht apiisa
thing with measure
'something to measure with'

One interesting fact about naa is that it appears prefixed rather than suffixed, an unusual position for a derivational affix. Some have asserted (particularly Williams (1981) that righthanded headedness, or the placement of the category-specifying morpheme on the right side, is 'global', as in his Righthand Head Rule (p. 248): 'the head of morphologically complex word is the righthand member.' There are exceptions, even in English: the derivational prefix en- as in endanger, ennoble, enrage would give evidence that the righthand head rule is expected but not mandatory. (Williams acknowledges this counterexample as exceptional, rendering such words headless rather than left-headed.)

Furthermore, there may be reason to be concerned that the syntax is sensitive to the order of the morphological constituents (Baker 1989). Although Baker's case is specific to inflectional affixes, we could make the case that the element that changes the lexical category must be in a position where the syntax could be sensitive to it, or put another way, where its features could project to the phrase level, presumably at word edges. If this matters, we could speculate that Choctaw NPs are relentlessly left-headed, so that in the naa- derivatives the first element of the

nominalized verb, and the first element of the NP would be a morpheme signalling `noun'.

We might look at acknowledged compounds to see if the naa derivations group with them. Compounds created from two nouns place the `modifying' noun before the `head'.

(52) shokha nipi
pig meat
`pork'

While there are some instances of naa-words with bases that are categories other than Verb, these words have unpredictable outputs: cf. (Byington 1915) naahomma `red blanketing' (naa + A) and even naabila (naa + N) `grease'. Since the productive naa only attaches to verbs, this fact alone would seem to make the compound hypothesis suspect. Why shouldn't we compound naa with other `nouns'?

(53) * nipi naa
meat thing
? `meat of unknown origin'

Naa- derivations can be compounded like any other noun, however. Szymanek's requirement for compounding is that it involve complete lexical items, suggesting that naa- could not appear outside the compound.

(54) naafohka aiitatoba
clothes store
`clothing store'

* naa[fohka aiitatoba]

Running down other possible analyses, since naa sits directly to the left of the verb, in the verb's direct object slot, and if not a transitive verb, in the subject slot, we might wonder whether these are not just a verb and its argument.

(55) naa hiłła
thing dance
`thing dance'

naa haklo
thing hear
`thing hear - hear a thing'

But while aknowledging the probable etymology of naa-, to accept such a hypothesis means abandoning the validity of both syntax and morphology; it takes little imagination to foresee the linguistic bedlam created by

permitting tiny clauses to exist inside noun phrases of this level.

In any event, Choctaw speakers are always able to employ the full word-level noun nana when treating the 'thing' idea as a subject or direct object of a verb.

(56) Nana chompa-h sa -banna-h.
something buy pred 1acc want pred
'I want to buy something'

From this evidence, I would categorize naa as a nominalizing prefix.

Conclusion

My analysis of possible morphological nominalizers has been predicated upon two of Aronoff's assumptions; first, that a Word Formation Rule must be 'constant and completely specified' (p. 63), the second, that a WFR is independent of the syntax. (In a reformed view, that of Anderson 1990, if morphology is not utterly independent of syntax, at least 'all derivation must take place prior to lexical interpretation' (p. 118).)

Given the large number of dictionary-listed nouns appearing in the same form as related verbs, but without predication markers, I first hypothesized that any verb could be nominalized simply by converting it to the desired category. This proved to be incorrect: as only some verbs can be so used, these must be nominalized in the lexicon. These lexicalized nouns do not bear a predictable relationship to the verb from which they are derived; they may be actor, single act of V, condition of V, or others. Again, since the output is not fully specified, this is not a word formation rule.

Missing from the list of output type was gerund: verbs are nominalized in the lexicon at the X-zero level or participate in syntactically nominal constituents.

The second hypothesis was that penultimate accent (high falling pitch) nominalized verbs. This was not upheld experimentally, as native speakers identified verbs as verbs when pronounced in isolation, whether with even stress or penultimate accent, and without predicative -h. A phonemic accent was identified: final accent does form the second person imperative and some aspect markers. Speakers identified final-accented verbs as imperative forms when the verbs were pronounced in isolation. Penultimate accent on verbs may be expected as part of phrasal pitch contour.

Phonemic lengthened vowels in the penultimate may also be associated with higher pitch.

The prefix naa- was found to be a successful morphological nominalizer.

NOTES

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1 Choctaw orthography has not yet been standardized. Researchers commonly use the popular digraphs <sh> and <ch> for the consonants /š/ and /č/. I follow Ulrich (1986) in his vowel inventory of /a/, /aa/, /ă/; /o/, /oo/, /ŏ/; /i/, /ii/, /ĭ/. For the lateral fricative, I use the IPA symbol rather than <lh>. Syntactic glossing abbreviations are: acc `accusative'; nom `nominative'; pred `predicate'; subj `subject marker' ; comp `complementizer'; dem `demonstrative'; and asp `aspect marker'.

2 We might argue in the case of ikhaana `to know' that this form is the stative/incompletive form of the neutral counterpart ikhana `to learn', denoting an event. Then the `accent' is obtained by rule and is not underlying.

3 Ulrich's assertion that glottal stops are diachronically related to other forms may be interesting from another point of view. Robert Ranking (personal communication) suggests that glottal stop in some non-Muskogean languages is often traced to the high-low pitch contour of a parent language (see Rankin 1997). My consultants who are speakers of one dialect in particular, that originating in Louisiana, produce, especially in /oo/ and /ii/ a decided high-low contour in pronouncing some word, such as tóòbi contrasting with tohbi `white' and ishtmíìti contrasting with ishtmĭti `to bring'.

4 I use `nom' for `n', [?] for ['], and `pred' for `v'. Sentence (3) may also be glossed `I'm looking at the tall man.'

5 These are the stative, iterative, instantaneous, and intensive, as well as the neutral.

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